

## C l a i m s

1. A flexible riser or loading system for transferring hydrocarbons between a sea bed installation (29) and a vessel (10) floating at sea surface (14),  
5 characterized in that the riser (18) is provided with means (20) for protecting the riser (18) from impact, such protection means (20) covering at least the upper part of the riser (18), the protecting means  
10 (20) further being provided with a stretching or tensioning means (22), preferably attached to the lower end of the protection means (20).
2. A flexible riser or loading system according to claim  
15 1, wherein the riser protection means (20) is suspended from the vessel (10).
3. A flexible riser or loading system according to claim  
20 1, wherein the riser protection means (20) is suspended from a submerged turret loading buoy (19).
4. A flexible riser or loading system according to any one of the claims 1-3, wherein the stretching means (22) is formed by an annular body (22) surrounding the flexible  
25 riser (18).
5. A flexible riser or loading system according to any one of the claims 1-4, wherein the stretching means (22) is moored to the sea bed (16) by means of wires (30).  
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6. A flexible riser or loading system according to any one of the claims 1-5, wherein the stretching means (22) at the lower end of its interior surface is provided with a curved surface designed to reduce detrimental impact or  
35 wear and tear on the riser caused by relative movement of the stretching means (22).

7. A flexible riser or loading system according to any one of the claims 1-5, wherein the riser (18) in the vicinity of the stretching means (22) is provided with a collar (27) designed to reduce detrimental impact on the 5 riser caused by relative movement of the stretching means (22).
8. A flexible riser or loading system according to claim 1, wherein the stretching means (22) are suspended by 10 means of chains or wires (21) carrying the riser protection.
9. A flexible riser or loading system according to any one of the claims 1-8, wherein the riser protection (20) is formed by a plurality of separate hollow elements (23), 15 each being suspended by means of chains or lines (21).
10. A flexible riser or loading system according to claim 9, wherein the hollow elements (23) are truncated and 20 conical with a smaller upper diameter and a larger lower diameter or vice versa.
11. A flexible riser or loading system according to any one of the claims 9 or 10, wherein the hollow elements 25 (23) forming the riser protection means (20) are stacked on top of each other when in a retracted position.
12. A flexible riser or loading system according to any one of the claims 1-11, wherein the riser protection means 30 (20) is completely retractable into a sheltered position on the vessel (10).
13. A flexible riser or loading system according to any one of the claims 1-12, wherein the hollow elements (23) 35 are provided with internally coating or friction reducing layer in order to minimize friction or load impact between the riser (18) and the protection means (20), enabling the

riser (18) to move freely within the riser protection means (20).

5 14. A flexible riser or loading system according to any one of the claims 1-13, wherein each hollow element (23) at its wider edge, is provided with a stacking ridge (25) enabling the hollow element (23) to be stacked on a next element (23).